

L 25951-66 FBD/EWT(1)/EWT(m)/EEC(k)-2/ETC(f)/EWG(m)/T/EWP(k)/EWA(h) IJP(c)	
ACC NR: AP6011579 DS/WG/JD	SOURCE CODE: UR/0051/66/020/003/0522/0524 ⁵³
AUTHOR: <u>Znamenskiy, V. B.</u> ; <u>Buynov, G. N.</u> ; <u>Bursakov, E. S.</u>	
ORG: none	
TITLE: Investigation of the dependence of the discharge parameter and the generation power of an <u>He-Ne laser</u> on the diameter of the hollow cathode	
SOURCE: Optika i spektroskopiya, v. 20, no. 3, 1966, 522-524	
TOPIC TAGS: gas laser, helium neon laser, laser r and d	
<p>ABSTRACT: Inasmuch as earlier publications on this subject contain no systematic data on the connection between the cathode diameter and the gas-laser parameters, the authors determine the discharge parameters in a hollow cathode which are optimal for the laser power at $\lambda = 1.153 \mu$, and establish experimentally the connection between the pressure of the <u>neon</u> and helium mixture components, the discharge current density, the generation power, and the cathode diameter. The construction of the hollow cathode was the same as described by V. P. Chebotayev and V. V. Pokasov (Radiotekhnika i elektronika v. 10, 958, 1965). The cathode diameters were 8.5, 14, and 20 mm. To determine the optimal neon/helium pressure ratio, the dependence of the laser power on the helium pressure was plotted for a specified neon pressure for each cathode diameter. The optimal neon to helium pressure ratio was found to be $\sim 1:45$. The generation pressure increased with the current density from the cathode, but reached approximate saturation when the product of the current by the cathode diameter was</p>	
Cord 1/2	UDC: 621.375.9: 535

L 25951-66

ACC NR: AP6011579

~12 ma/cm. The dependence of the laser power on the partial pressure of the helium showed a maximum near 10 mm Hg for all cathode diameters. At the optimal mixture pressure components and discharge current density, an increase in the cathode diameter from 8.5 to 20 mm resulted in a 3.5-fold decrease in the generator efficiency. Some of these effects are explained in terms of the changes occurring in the different level populations. The authors thank K. S. Mustafin, I. M. Belousova, and Yu. M. Kagan for valuable remarks. Orig. art. has: 2 figures and 1 formula. [02]

SUB CODE: 20/ SUBM DATE: 31Aug65/ ORIG REF: 002/ OTH REF: 001/ ATD PRESS:

4257

Card 2/2 F(0)

BUYANOV, I., dvazhdy Geroy Sotsialisticheskogo Truda, deputat
Verkhovnogo Soveta SSSR

The name "Il'ich" is enthroned in our hearts. Komm.Vooruzh.Sil
2 no.19:52-54 O '61. (MIRA 14:9)

1. Predsedatel' kolkhoza imeni Vladimira Il'icha, Gorki.
(Collective farms)

BUYANOV, I. A. (Eng.)

- XVII. "Unified Coil-winding Machines for Winding of Coils, Potentiometers and Rotors," Automation and Mechanization of Production Processes in Instrument manufacturing, Moscow, Mashgiz, 1958. 591 p.

PURPOSE: This book is intended for engineers, technicians, and scientific personnel concerned with mechanization and automation of production processes in instrument manufacturing, and for students and teachers of this subject in vuzes.

BUYANOV, I. A.

"High Yields of Winter-Crop Seeds on Crop-Fallow Fields," Sel. 1 sem., 19, No.2,
1952

BUYANDV, I.A.

Chto dait kolkhozu i kolkhoznikam
meropriiatiia partii i pravitel'stva po poderny zhivot-
novodstva (What the measures of the Party and the
government for the improvement of stockbreeding
contribute to the collective farm and the collective
farm workers) Moskva, Mosk. rabochii, 1954. 35 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 5, August 1954

BUYANOV, I.A., Geroy Sotsialisticheskogo Truda, predsedatel'.

In the Vladimir Il'ich Collective Farm. Nauka i zhizn' 21 no.1:24-26
Ja '54. (MLRA 7:1)

1. Kolkhoz imeni Vladimira Il'icha, Leninskogo rayona, Moskovskoy
oblasti.

(Collective farms)

BUYANOV, I.A.

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[Collective farms in the Moscow region] Kolkhhoz pod Moskvoi. Moskva, Moskovskii rabochii, 1956. 365 p. (MLRA 10:5)
(Moscow Province--Collective farms)

BUYANOV, I.A., dvazhdy Geroy Sotsialisticheskogo Truda.

New life for peasants of the village of 'Gorki. Sel', stroi. 12 no.11:
6-7 N '57. (MIRA 10:11)

1. Predsedatel' kolkhosa imeni Vladimira Il'icha.
(Gorki (Moscow Province)--Social conditions)

STARTSEV, D.; KOLESNIEV, S., zasluzhennyy deyatel' nauki; BOYEV, V.;
KHOROKHORIN, D.; SKURIKHIN, I.; KHOKHLOV, Ye.; BUYANOV, I.,
dvazhdy Geroy Sotsialisticheskogo Truda; TROFIMOV, A.; STEPANOV, N.;
FEDOTOV, S.

The road toward new achievements. Sots. trud. no.4:14-36 Ap '58.
(MIRA 11:4)

1. Starshiy ekonomist Tsentral'nogo planovo-ekonomicheskogo upravleniya Ministerstva sel'skogo khozyaystva SSSR (for Startsev).
2. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I. Lenina (for Kolesnev).
3. Zaveduyushchiy sektorom ekonomicheskogo stimulirovaniya sel'skokhozyaystvennogo proizvodstva Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I. Lenina (for Boyev).
4. Zaveduyushchiy sel'skokhozyaystvennym otdelom Moskovskogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza (for Khorokhorin).
5. Zaveduyushchiy kafedroy ekonomiki i organizatsii sel'skokhozyaystvennogo proizvodstva Ivanovskogo sel'skokhozyaystvennogo instituta (for Skurikhin).
6. Nachal'nik Spetsial'nogo konstruktorskogo byuro zavoda sel'khoz mashin im. Ukhtomskogo (for Khokhlov).
7. Predsedatel' kolkhoza "Vernyy put'," Ivanovskogo rayona, Ivanovskoy oblasti (for Trofimov).
8. Glavnyy agronom Ramenskoy mashinno-traktornoy stantsii (for Stepanov).
9. Sekretar' partiynoy organizatsii Ramenskoy mashinno-traktornoy stantsii (for Fedotov).
10. Predsedatel' kolkhoza im. Vladimira Il'icha (for Buyanov).

(Machine-tractor stations) (Collective farms)

BUYANOV, I.A.

Assure collective farms of continuous electric supply. Mekh.
i elek.sots.sel'khoz. 17 no.6:44 '59. (MIRA 13:4)

1. Predsedatel' kolkhoza im. Vladimira Il'icha, Moskovskoy
oblasti.

(Rural electrification)

BUYANOV, Ivan Andreyevich, dvazhdy Geroy Sotsialisticheskogo Truda,
deputat Verkhovnogo Soveta SSSR; KOROBOV, P.I., red.;
MARAKASOVA, L.P., tekhn.red.

[On renovated land] Na obnovennoi zemle. Moskva, Izd-vo
"Sovetskaya Rossiya," 1961. 78 p. (MIRA 15:2)

1. Predsedatel' kolkhoza imeni Vladimira Il'icha (for Buyanov).
(Agriculture)

BUYANOV, I.A., dvazhdy Geroy Socialisticheskogo Truda

Communist production needs efficient organization. Zemledelia 25 no.9:
10-12 S '63. (MIRA 16:9)

1. Predsedatel' kollektiva imeni Vladimira Il'icha.
(Moscow Province--Agriculture)

BUYANOV, K., inzh.

Lightweight sanitary-engineering blocks. Zhil.stroi. no.4/5:50-51
'58. (MIRA 12:6)

(Asbestos cement)
(Sanitary engineering)

BUYANOV, K.A.

Considering labor expenditure setting up oil fields when
calculating the production program of oil fields. Trudy
VNII no.26:113-118 '60. (MIRA 13:9)
(Oil fields--Production methods)
(Efficiency, Industrial)

USSR/Technical Crops. Oil Plants. Sugar Plants.

M

Abs Jour: Ref Zhur-Biol., No 17, 1958, 77795.

Author : Duyanov, M.F.
Inst : Pyatigorskii sel'skokhozyaystvennyy tekhnikum.
Title : Secondary (Autumn) Blossoming and Fruit Bearing of
the White Mulberry Tree.

Orig Pub: Botan. zh., 1956, 41, No 10, 1490-1495.

Abstract: Observations and experiments conducted in the Pyatigorskii Agricultural Technicum are described. Natural secondary blossoming in the white mulberry tree (*Morus alba*) in 1951-1952 was observed only in sprouts with the summits broken away. In trees pruned on the 5-8 of August 1953, a mass blossoming and abundant fruit bearing was observed. Short pruning of

Card : 1/2

122

BUYANOV, M.F.

Remote hybridization of cereals without castration. Agrobiologiya
no.6:934-936 N-D '60. (MIRA 13:12)

1. Pyatigorskiy sel'skokhozyaystvennyy tekhnikum.
(Grain breeding) (Hybridization, Vegetable)

BUYANOV, N., podpolkovnik.

Military engineers successfully master the use of engineering
equipment. Voen.-inzh. zhur. 101 no.4:9-11 Ap '57. (MLRA 10:6)
(Military engineers)

BUYANOV, N., kapitan

Effect of difference on a ship's speed. Mor. flot no. 10:5-7 0 '58.
(MIRA 11:11)

1. Parokhod "Vladivostok".
(STOWAGE)

BUYANOV, N.

Sub-refraction in the La Perouse Strait. Mor.flot 19 no.1:36 Ja '59.
(MIRA 12:3)

1. Kapitan parokhoda "Vladivostok."
(La Perouse Strait--Navigation)

BUYANOV, N. A.

PA 37/49T51

USSR/Engineering
Machines, Metal-Cutting
Machines, Milling

Sep 48

"Combined Profile Milling Cutters With Blades of
High-Speed Cutting Steel Welded by an Atomic-Hydrogen
Arc," N. A. Buyanov, $\frac{1}{2}$ p

"Stan'ki i Instrument" No 9

Describes manufacture of subject cutters. They equal
solid cutters in all respects, and saving of high-
speed tool steel is considerable. Includes five
sketches.

37/49T51

PHASE I BOOK EXPLOITATION

SOV/4683

Buyanov, Nikolay Fedorovich

Kratkoye radiolokatsionnoye opisaniye ~~marshruta~~ Chernoye more - Dal'niy Vostok
(Brief Radar Description of a Route from the Black Sea to the Far East) Moscow,
Izd-vo "Morskoy transport," 1960, 26 p., 42 p. of illus. 3,000 copies printed.
Ed.: G.K. Shumeyko; Ed. of Publishing House: M.I. Petin; Tech. Ed.: Ye. A.
Tikhonova.

PURPOSE: This booklet is intended for navigational personnel of the Soviet merchant Fleet.

COVERAGE: The author describes principles of reading radar images, principles of radar topography and meteorology, and the connection of the latter with the propagation of centimeter waves and the range of radar detection. The major part of the booklet is devoted to a description of the radar characteristics of the Black Sea - Far East route. The author illustrates the most complex sections of that sea route by photographs taken from the screen of the ship's "Neptun" radar station. Each photograph is accompanied by a navigational chart of the corresponding area. No personalities are mentioned. There are 16 references, all Soviet.

Card ~~1/3~~

S/194/62/000/006/197/232
D295/D308

AUTHOR: Buyanov, N.F.

TITLE: The influence of meteorological conditions on the range of radar visibility in tropical waters

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-7-125 a (Inform. sb. Tsentr. n.-i. in-t morsk. flota, no. 60, 1961, 18-28)

TEXT: The article describes the results of investigations into the influence of meteorological conditions on the range of radar visibility in tropical waters (Red Sea, Aden Gulf, Suez Canal). Results of measurements of radiowave refraction are shown; the distinctive features of enhanced radar visibility owing to the formation of atmospheric waveguides in a sea-based layer of the atmosphere are described; the effect of reduced target visibility on the screen (down to 60 %) owing to sandstorms is pointed out. [Abstracter's note: Complete translation.] ✓

Card 1/1

FEDOROV, A.F.; PODYMAKHIN, V.N.; KILEZHENKO, V.P.; BUYANOV, N.I.
GOLOSKOVA, E.M.

Radiation conditions in the fishing regions of the North
Atlantic. Okeanologiya 4 no.3:431-436 '64 (MIRA 18:1)

1. Polyarnyy nauchno-issledovatel'skiy i proyektnyy institut
morskogo rybnogo khozyaystva i okeanografii imeni N.M.Knipovicha.

The effect of changes in the distance between electrodes
on the accuracy of quantitative spectral analysis. N. V.
Ilyanov--*Zavodskaya Lab.*, No. 1, 00-72(1940).—
With increase of the distance between the electrodes the
intensities of the Sn II line 3382.25 Å, and the Fe, Sb, Pb,
and As lines increase as compared with the Sn I line 2061.25
Å. This is due to the fact that the excitation potentials of
these lines are greater than the excitation potential of Sn
I, which is 4.84 v. For Cu, the intensity decreases with
electrode distance. Two references. W. R. Henn

ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION

SOURCE SYNDICATE

STILLER ONE ONLY III

S		SPECTRAL DETERMINATION OF SMALL QUANTITIES OF BORON, VANADIUM, 21	
TITANIUM AND ALUMINIUM IN STEEL. N.V. Buyanov, A.V. Lutsenko, and N.N. Sorokina. (Zavodskaya Laboratoriya, 1947, vol. 13, pp. 447-451 (in Russian); Chemical Abstracts, 1949, vol. 43, Feb. 10, col. 964). Determinations were made with a Q24 spectrograph with A.C. arc gap of 2 mm. and 15 amp. A Zeiss three-lens arrangement was used for the illuminating system; a revolving diaphragm was mounted on the second lens which made it possible to use only the central portion of the flame. Photography of spectra was on diapositive plates and the exposure was 45 sec. Photometering and determination of concentrations were made by photometric interpolation. The use of a microphotometer in this case was found to be impossible because of the narrow slit of the spectrograph. The standards which were used to prepare the empirical curves were from carbon steel (0.5%C, 0.25% Si, 0.7% Mn, 0.05% Ni, 0.05% Cr, 0.04% P, 0.04% S, 0.005% Cu). As for the content of vanadium, titanium, aluminium, and boron, the standards were selected to cover the concentrations required for analysis. Error was $\pm 15\%$ for concentrations of 0.001%-0.01% and $\pm 5.5\%$ for 0.01%-0.1%.			
A.B. S.L.A. METALLURGICAL LITERATURE CLASSIFICATION			
FROM SOURCE		TO SOURCE	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	

CA

7

Spectral analysis of ores and slags in an alternating-current arc. N. V. Buyanov. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 439-443 (1948).—In V ores and slags, V_2O_5 (0.7-1.6%) is detd. by the line pair V 3110.71-Ni 3107.71 Å.; V_2O_5 (2.0-15.0%) by V 3110.71-Ni 3114.12; CaO (1.4-6.0%) by Ca 3179.33-Ni 3145.72; Al_2O_3 (2.0-10.0%) by Al 3082.16-Ni 3080.76; MgO (1.0-8.0%) by Mg 2782.97-Ni 2805.08; FeO (1.5-10.0%) by Fe 3047.80-Co 3044.00; Fe (20.0-40.0) by Fe 3083.74-Ni 3089.12; SiO_2 (12.0-25.0%) by Si 2881.58-Ni 2821.29. In Cr slags, Cr_2O_3 (5.0-55.0%) by Cr 3124.88-Ni 3114.12; Al_2O_3 (5.0-20.0%) by Al 3082.16-Ni 3080.76; Fe_2O_3 (1.5-8.0%) by Fe 3047.80-Ni 3045.00; CaO (2.0-6.0%) by Ca 3179.33-Ni 3145.72; SiO_2 (20.0-40.0%) by Si 2881.58-Ni 2821.29; MgO (10.0-30.0%) by MgO 2782.97-Ni 2805.08 Å. The accuracy of the detns. is, in V slags, V_2O_5 4.0, FeO 1.8, SiO_2 7.3, Al_2O_3 5.6, CaO 2.9, MgO 1.9%; in V ores, 7.0, 4.2, —, 3.5, 3.9, —; in Cr slags, Cr_2O_3 3.1, Fe_2O_3 3.3, SiO_2 2.7, Al_2O_3 4.7, CaO 5.0, MgO 2.0%.
N. Thon

Central Sci. Res. Inst. Ferrous Metallurgy

1ST AND 2ND GROUPS										3RD AND 4TH GROUPS									
PROCESSES AND PROPERTIES INDEX																			
<div style="display: flex; justify-content: space-between;"> 5 21 </div> <p>SPECTRUM ANALYSIS OF SLAGS. N.V. Buyanov. (Zavodskaya Laboratoriya, 1948, vol 14, May. pp. 566-570). (in Russian). A detailed account is given of a method of spectrum analysis which was found to be satisfactory for complex slags. A 0.5-g. sample, crushed to 200 mesh, was evenly sprinkled along the longer side of a 90 x 45-mm. plate (the lower electrode of an arc gap) to form a strip 10-12 mm. wide and 85-90 mm. long. After a 1500-V. arc had been struck, the lower electrode was slowly moved with respect to the stationary upper electrode for 2 min., this being the exposure. Calibration curves were obtained from the spectra of 28 samples of low-chromium slags, the composition of which had been established chemically. Applied to the analysis of a slag containing the oxides of silicon, magnesium, manganese, chromium, calcium, aluminium, and iron, the method gave results varying by $\pm 1.5-5.0\%$, the time required for analysis for seven elements being 20-25 min.—S.K.</p>																			
<div style="display: flex; justify-content: space-between;"> <div> <p>ASB-55A METALLURGICAL LITERATURE CLASSIFICATION</p> <p>620000 H17 ONY JET</p> </div> <div> <p>620000 H17 ONY JET</p> <p>620000 H17 ONY JET</p> </div> </div>																			

BUYANOV N. V.,

USSR/Metals - Spectrography

Sep/Oct 50

"Spectral Analysis of Small Admixtures of Lead and Antimony in Nickel Alloys," N. V. Buyanov, Cen Sci Res Inst of Ferrous Metallurgy

"Iz Ak Nauk SSSR, Ser Fiz" Vol XIV, No 5, pp 649-652

Outlines equipment and operational method. In particular shows how to avoid difficulties of identification of Sb and Pb lines which mostly coincide with other lines.

172T61

USSR/Chemistry - Spectral analysis

Card 1/1 Pub. 43 - 61/97

Authors : Buyanov, N. V.; Pollyul', Yu. P.; and Tsvetkova, N. N.

Title : The mutual effect of the material of the upper and lower electrodes during spectral analysis of ferrous metals

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, page 280, Mar-Apr 1954

Abstract : The mutual effect of electrode materials (Fe, Cu, Ni, Al and C - upper electrodes - and binary and tertiary alloys and steel - lower electrodes) during the spectral analysis of ferrous metals was investigated. The findings of the investigation are listed.

Institution : Central Scientific Research Institute of Ferrous Metallurgy

Submitted :

"APPROVED FOR RELEASE: 06/09/2000

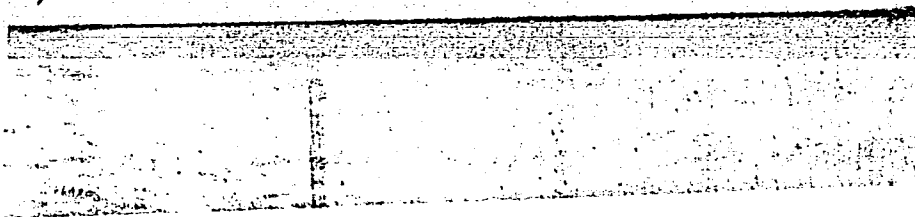
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Boyancy, N.V.

APPROVED FOR RELEASE: 06/09/2000

CIA-RDP86-00513R000307810013-8"

BUYANOV, N.V.



U S S R

13389* Spectral Analysis of Slags. Spektrol'nyi analiz shla-
kov. (Russian.) N. V. Buyanov. Izvestiya Akademii Nauk
SSSR, Seriya Fizicheskaya, v. 19, no. 1, Jan.-Feb. 1955, p. 85-88.
Equipment and methods; comparison with other analytical
methods. Tables. 30 ref.

BUYANOV, N.V., kandidat tekhnicheskikh nauk.

Review of the book "Atlas of arc and spark spectra of iron" by
S.K.Kalinin, A.A.IAvnel', L.E.Naimark. Reviewed by N.V.Buianov.
Zav.lab.21 no.9:1143 '55. (MLRA 9:1)

(Iron--Spectra) (Kalinin, S.K.) (IAvnel, A.A.) (L.E.Naimark)

Buyanov, N.V.

USSR/Optics

K

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10487

Author : Buyanov, N.V.

Inst : Central Scientific Research Institute for Ferrous Metals, Moscow, USSR

Title : Spectrographic Analysis of Carbon Low-Alloyed Steels and Open
Hearth Pig Iron.

Orig Pub: Izv. AN SSSR, ser. fiz., 1955, 19, No 2, 174-178

Abstract: The article comprises an instruction for a spectrographic analysis of carbon and low-alloyed steels containing Mn, Si, Cr, Ni, Al, Mo, Ti, and Cu, as well as open-hearth pig iron containing Mn and Si.

Card : 1/1

BORZDYKA, A.M., doktor tekhnicheskikh nauk; KAMINSKIY, E.Z., kandidat fiziko-matematicheskikh nauk; BUYANOV, N.Y., kandidat tekhnicheskikh nauk; GENEROZOV, B.A., detsent; GOLOVCHIKER, Ya.M., inzhener.

"Properties of materials used in turbine building and methods of testing them." Reviewed by A.M.Borzdyka and others. Zav.lab.22 no.4: 511-512 '56. (Metals--Testing) (MIRA 9:7)

AUTHORS: Buyanov, N.V., Zubkovskiy, S.L., Kovalenko, T.V., 32-24-6-15/44
 Korotkov, V.F., Lindstrem, V.R.

TITLE: Spectral Analysis of Steels on the Modernized Apparatus FES -1
 (Spektral'nyy analiz staley na modernizirovannom pribore FES -1)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 6, pp 703-708 (USSR)

ABSTRACT: Photometrical reproducibility was determined, and in this connection it was found that the average arithmetical error on the sensitivity scale of 1:1 amounted to $\pm 0.5\%$ and with 5:1 to $\pm 0.15\%$. Measurements of the intensity of the line of iron 5227 \AA obtained from an Armco iron sample showed that on the scale 1:1 a reproducibility of $\pm 1.1\%$ is obtained with a 4.5 ampere current, and that at 5:1 it amounts to $\pm 0.62\%$. It was observed that a distance between electrodes of 1.5 mm warrants accurate reading and good reproducibility; a base electrode of copper was used on this occasion. For the purpose of working out the method of analysis the etalons of the UIM, of the TsNIIChM, and of the plants "Elektrostal'", "Serp i molot" and "Dneprospetsstal'" were used. The spectral line, measuring accuracy, and reproducibility in connection with the analysis are mentioned. Carbon-containing low- and medium-alloyed steels were analyzed, and data concerning the

Card 1/2

Spectral Analysis of Steels on the Modernized Apparatus
FES-1

32-24-6-15/44

determination of silicon, molybdenum, titanium, vanadium, chromium, manganese, tungsten, and nickel are given, as also data for the high-speed steels P 9 and P 18 and the stainless steel EYALT. The influence exercised by chemical composition upon the intensity of the not separated light was investigated in binary alloys Fe-Cr, Fe-W, Fe-Ni, and Fe-Si. The results obtained are given in form of graphs; it was found that in the case of Fe-W and Fe-Cr samples the intensity of light increases with an increase of tungsten and chromium concentration respectively, whereas the contrary is the case with Fe-Ni and Fe-Si systems. On the strength of these findings it is assumed that for the purpose of stabilizing light intensity the corresponding metal can be used, as e.g. nickel as electrode support in analyses of the Fe-W and Fe-Cr systems. There are 7 figures and 1 table.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii
(Central Scientific Research Institute of Ferrous Metallurgy)

1. Steel--Spectra
2. Steel--Testing equipment
3. Steel--Test results
4. Spectrum analyzers--Performance

Card 2/2

AUTHORS: Buyanov, N. V., Kaminskaya, N. P. SOV/32-24-9-19/53

TITLE: Spectrum Analysis of High-Precision Alloys (Spektral'nyy analiz pretsizionnykh splavov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 9, pp 1086 - 1090 (USSR)

ABSTRACT: The analysis of high-precision alloys must be such as to be carried out quickly and to be sufficiently accurate, as many samples must be examined within a short time. The spectrum method satisfies these requirements only partly as it does not give sufficiently accurate results. In the present paper a method of measuring was worked out which makes it possible to obtain a considerably higher degree of measuring accuracy by employing the method by A.V.Lutsenko, N.N.Sorokina (Refs 1,2) and L.I. Topalov (Refs 3,4). Following this method the Ni, Mo, Mn, and Si-content of a permalloy was investigated. For this experiment a spectrograph ISP-22 with an illuminant IG -2 was employed. Irradiation took 50 seconds and exposure 60 seconds. The analyses of the alloys H52, H50, H45, H39 and H36 for the determination of their content

Card 1/2

Spectrum Analysis of High-Precision Alloys

SOV/32-24-9-19/53

of Ni, Mn and Si were carried out at equal conditions as employed for the permalloy examination; irradiation, however, took only 30 seconds and exposure 40 seconds. The technique of calculation is given. Analyses of the alloy H25X2 carried out for determining the content of Ni, Cr, Mn and Si as well as of wrought alloys with respect to their content of Ni, Co, Mn and Si were carried out in a similar manner. There are 1 figure, 6 tables, and 4 references, which are Soviet.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut Chernoy metallurgii (Central Scientific Research Institute of Iron Metallurgy)

Card 2/2

24(7)

AUTHOR:

Buyanov, N. V.

SOV/48-23-9-14/57

TITLE:

The Influence of the Chemical Composition of Samples Upon the Intensity of the Spectrum of the Base Material and the Results of Spectral Analysis

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 9, pp 1083-1085 (USSR)

ABSTRACT:

In an analysis of steel containing more than 10-20% alloy elements a reduction of the intensity of the base material spectrum may be expected. In series of standard alloys Fe-Ni, Fe-Mn, Fe-Si, Fe-Cr, Fe-W, Fe-Al, Fe-V, and Fe-C this effect was investigated, in which case the alloy elements attain concentrations of up to 25%. The spectra of spark- and arc-light sources were photographed, and the results obtained according to formulas (1) and (2) are shown by diagrams. The results are given by the following six points: 1) The absorbing effect exercised by the alloy elements depends to a considerable degree on the nature of the light source (see table). Thus, in spark-light sources a weakening may be observed in the case of a content of more than 5% Mn or less than 0.4% Al, whereas in arc-light sources this occurs only with 25% Mn and 13% Al. 2) The effect depends on the material of the electrode under the sample. 3) Al, Ti, Si, and C exercise a considerable in-

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SOV/48-23-9-14/57

The Influence of the Chemical Composition of Samples Upon the Intensity of the Spectrum of the Base Material and the Results of Spectral Analysis

fluence upon the intensity of the base-material spectrum of the alloy sample already at 0.4 to 4%. 4) The results obtained by analyses according to a certain element also depend on the content of other elements in the alloy. 5) A number of alloy elements which weaken the spectrum of the base material exercise no influence upon the determination of some other elements. 6) On the basis of the results obtained it may be said that all alloy elements influence the stability of the base-material spectrum, and that it is not possible to explain this solely by a weakening effect being produced. In the alloys under investigation the influence exercised by the alloy elements upon alloy structure manifests itself, which leads to a variation of the entry of the sample material into the discharge plasma. There are 3 figures, 1 table, and 4 references, 3 of which are Soviet.

Card 2/2

24(7)

AUTHORS: Buyanov, N. V., Fedorova, L. M., Korotkov, V. F. SOV/48-23-9-33/57

TITLE: The Influence of Chemical Composition and Heat Treatment Upon the Results of Nitrogen Determination by Spectroscopical Methods

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 9, pp 1126 - 1128 (USSR)

ABSTRACT: In the present paper the influence exercised by "third" elements and of heat treatment on the results of nitrogen determination in various brands of steel is dealt with. The composition of the samples was determined three times at the chemical laboratory and the spectra were recorded in a vacuum chamber. The chamber was first evacuated to 10^{-1} torr, after which it was filled up with helium up to a pressure of 350 torr. Tungsten electrodes were used (distance 0.35 mm, exposition 0.2 sec); analysis was carried out by means of the line N 3999.5 Å. The light source used was a low-voltage spark with a semiperiod discharge. On the four steels of the type St10, Kh25, Kh25T and Kh25Yu5 the influence exercised by "third" elements (chromium, aluminum, titanium, and silicon)

Card 1/2

The Influence of Chemical Composition and Heat Treatment Upon the Results of Nitrogen Determination by Spectroscopical Methods

SOV/48-23-9-33/57

was investigated. The results obtained are shown by the diagram in figure 1. With an admixture of 1% Ti in the steel of the type Kh25 (and Kh25T) the blackening of the nitrogen lines increased to 0.80. An Al-admixture of 5% increased the line intensity to 1.5. In general it was found that the admixture of the above elements alters the results of nitrogen determination considerably. The influence of heat treatment was investigated in the case of the steels of the types 10, ShKh15 and Kh25. Hardening of the samples reduces the slope of the calibration curve considerably, and in the case of the steel of the type 10 the concentration-sensitivity of the lines was lost altogether. Annealing of the samples improves the reproducibility of analyses, whereas they are deteriorated by tempering. Furthermore, the influence exercised by the degree of purity of helium was discussed. There are 2 figures.

Card 2/2

S/081/61/000/020/036/089
B117/B147

AUTHORS: Buyanov, N. V., Razumova, G. P., Sorokina, N. N., Yakovlev, P. Ya.

TITLE: Spectrochemical method of determining small impurities in metallic chromium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 124, abstract 20D146 (Sb. tr. Tsent. n.-i. in-t chernoy metallurgii, no. 19, 1960, 65 - 71)

TEXT: In the analysis of metallic chromium, the chemical concentration of impurities (Cd, Sb, Bi, Pb, Sn) is conducted by treating acid hydrogen sulfide solutions with the use of copper as a collector. For producing standards, 3 g of pure metallic chromium is mixed in a quartz glass with the determinable elements and 30 - 40 milliliters of HCl, and heated until dissolution. The resulting solutions are concentrated by evaporation. Then, 20 milliliters of 50% citric acid solution, 5 milliliters of HCl, and 3 milliliters of CuNO₃ solution (10 mg/milliliter) are added. The solution

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Spectrochemical method of determining...

S/081/61/000/020/036/089
B117/B147

is adjusted to pH = 2 - 3 by means of NH_4OH , and filled up with 180 milliliters of water. H_2S is passed through for 20 min at a rate of 80-100 bubbles a minute. After 1 hr, the precipitates are filtered, washed with a solution containing H_2S and CH_3COONa , dried, ashed, and calcinated at 600°C ; thereafter, the standards are ready for use. Samples are treated similarly but without adding solutions of elements. The resulting concentrate weighing ~50 mg is mixed with carbon powder (1:1), and introduced in the opening of a carbon electrode (3.4 mm diameter and 9 mm depth). The electrode diameter is reduced to 2 mm near the opening. The spectrum is excited in an a-c arc at 12 a, and photographed (30 sec) on a medium-sized ИСН-22 (ISP-22) spectrograph with a 0.01 slit and an electrode spacing of 1.2 mm. Curves of evaporation of substances from the electrode were studied. Analysis is performed by the method of photometric interpolation with respect to the lines (in Å): Pb 2614 - Cu 2630, Bi 3067 - Cu 3088, Sb 2598 - Cu 2630, Sn 2429 - Cu 2441, and Cd 2288 - Cu 2276. The calibration curves are straight for the concentration range of $1 \cdot 10^{-4}$ - $1 \cdot 10^{-2}\%$. Depending on the element, the analytical error is $\pm 10 - 19\%$. The results

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Spectrochemical method of determining...

S/081/61/000/020/036/089
B117/B147

of the spectrum analysis and of other analytical methods are in satisfactory agreement. [Abstracter's note: Complete translation.]

Card 3/3

S/032/60/026/010/024/035
B016/B054

AUTHORS: Buyanov, N. V., Zubkovskiy, S. L., Kovalenko, T. V.,
Korotkov, V. F., and Lindstrom, V. R.

TITLE: Experience Made With the Photoelectric Apparatus ²⁴ДФС-10 (DFS-10) 28

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 10,
pp. 1155-1158

TEXT: The authors have been working for one year with the photoelectric spectral apparatus ДФС-10 (DFS-10) which had been described previously (Ref. 1). They checked the reproducibility of recording of electric signals and of light. Non-screened light sources (arc and spark) deteriorate the reproducibility of results considerably if these sources are 4-5 m distant from the apparatus. The shock absorption of the instrument was good since the tensile-testing machines operating in the neighborhood did not effect any shifts of exit slits with respect to the spectrum. Also the fluctuations of air moisture between 25 and 70% had no detrimental effect. Only 85-87% of relative air moisture effected a rapid change in readings. Temperature fluctuations between 17 and 29°C in the room

Card 1/3

Experience Made With the Photoelectric
Apparatus ДФС-10 (DFS-10)

S/032/60/026/010/024/035
B016/B054

did not influence the reproducibility of results although the carriages were displaced noticeably (Fig. 1). Therefore, a steady temperature should be maintained in the room. As examples for metal analyses, the authors describe the investigation of crude iron, plain steels, medium-alloyed steels, stainless steel of the type 1X18H9T (1Kh18N9T), and high-speed steels of the types P9 (R9) and P18 (R18). Figs. 2-8 show calibration diagrams for the determination of single alloy elements. The examples given and the experience made with the instrument justify the statement that the instrument DFS-10 guarantees a rapid and accurate analysis of crude iron and steel, including some complicated steel alloys. At present, the apparatus is being used for series analyses in factories. The values given in the paper for the errors of reproducibility were confirmed by analyses of factory specimens. A single analysis of the specimen for six elements takes 2.5 min. A repetition of the analysis takes the same time. The absolute sensitivity of analysis on the instrument mentioned does not deviate noticeably from that of photographic methods. The authors recommend, however, an improvement and simplification of the fitting and design of the instrument. There are 8 figures and 4 Soviet references.

Card 2/3

Experience Made With the Photoelectric
Apparatus ДФС-10 (DFS-10)

S/032/60/026/010/024/035
B016/B054

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy
metallurgii
(Central Scientific Research Institute of Ferrous
Metallurgy)

Card 3/3

YAKOVLEV, Pavel Yakovlevich, kand. khim. nauk; FEDOROV, Aleksey Alekseyevich, inzh.; BUYANOV, Nikolay Vasil'yevich, kand. tekhn. nauk; DYMGV, A.M., dokt. khim. nauk, prof., retsenzent; SHEMYAKIN, F.M., dokt., khim. nauk, prof., retsenzent; KHARLAMOV, I.P., kand. tekhn. nauk, retsenzent; VENETSKIY, S.I., red. izd-va; KLEYNMAN, M.R., tekhn. red.

[Analysis of data on metallurgical production; determination of microimpurities] Analiz materialov metallurgicheskogo proizvodstva; opredelenie mikroprimesei. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 316 p. (MIRA 14:7)
(Metals—Analysis)

BABAYEV, Mikhail Vasil'yevich; YELISEYEV, A.A., red.; BUYANOV, N.V., red.;
VENETSKIY, S.I., red. izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Rapid method of analysis at ferroalloy plants] Uskorennye metody
analiza na ferrosplavnykh zavodakh. Moskva, Gos. nauchno-tekhn.
izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 325 p.
(MIRA 14:3)

(Iron alloys--Analysis)

5.5310

31728
S/081/61/000/021/029/094
B101/B147

AUTHORS: Buyanov, N. V., Polyakova, R. S.

TITLE: Spectrum analysis of impurities and alloy elements in titanium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 111 - 112, abstract 21D111 (Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii, no. 19, 1960, 82 - 89)

TEXT: Three methods for analyzing metallic titanium (I) are described: determination of Ca and Mg in powdered I, determination of Fe, Si, Ni, Al, and Ca in I and Ti alloys, and determination of Cr, W, Mo, Mn, and Al in I. The standards are prepared by mechanical mixing of the components. When analyzing by the first method, 1 g of powdered I is briquetted at 200 atm. CaO and MgO are introduced in the standards. Spectra are excited by a condensed high-voltage spark of an ИГ-2 (IG-2) generator operating with a combined circuit at a capacitance of 0.01 μ f and a self-inductance of 0.01 mH. The analysis is performed by photometric interpolation, with a spark gap of 2 mm and carbon electrode (conical frustum),

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Spectrum analysis of...

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S/081/617000/021/029/094
B101/B147

and with 60 sec exposure without previous annealing. The standards for the other two methods are prepared by mixing powdered I with powders of the impurity metals and molding at 800 atm. Samples are sintered in a vacuum ($1 \cdot 10^{-2}$ mm Hg) at 1400°C for 6 hr, then heated in air at 1000°C, and rods are forged from them. The composition is determined by chemical analysis. Spectra for determining Fe, Si, Ni, Al, and Ca are excited by a-c arc and carbon electrode, spark gap 1.5 mm. Photographing is conducted without annealing for 60 sec. Cr, W, Mo, and Al are determined as described above, but the spectrum is excited by a spark on a carbon electrode, after preceding vaporization of the sample during 60 sec sparking (during 20 sec for Al). Mn is determined with an Al electrode and 1.5 mm diameter of the conical frustum area. Exposure 40 sec for Cr and Mo, 60 sec for Mn and Al, 90 sec for W. The annealing and evaporation curves are thoroughly described, and the analytical conditions are substantiated. The mean error of analysis with twofold taking of spectra varies between $\pm 2 - 10\%$. The range of determinable impurity concentrations lies between 1/100 and 1/10% for the first two methods, and between 1 and 8 - 15% for the third one. The analytical spectral lines lie in the range of 2300 - 4000 Å. The lines of Ti are used for comparison. [Abstracter's note: Complete translation.]

Card 2/2

KLYACHKO, Yu.A.; IZMANOVA, T.A.; BUYANOV, N.V.; TULEPOVA, I.V.; SUKHOVA,
N.P.

Spectrochemical method of analyzing nonmetallic inclusions in
steel. Sbor. trud. TSNIICHM no.24:82-86 '62. (MIRA 15:6)
(Steel--Inclusions) (Nonmetallic materials--Spectra)

BUYANOV, N.V.

Effect of carbon on the spectrum analysis of steel. Sbor. trud.

TSNIICHM no.24:87-94 '62.

(MIRA 15:6)

(Steel--Spectra)

BUYANOV, N.V.; IVANOVA, L.A.; LINDSTREM, V.R.

Spectrum analysis of precision alloys with use of a DFS-10
apparatus. Sbor. trud TSNIICHM no.24:101-104 '62. (MIRA 15:6)
(Alloys--Spectra)

BUYANOV, N.V.; FEDOROVA, L.M.

Characteristics of the spectrum method of determining nitrogen
and oxygen in steels. Sbor. trud. TSNIICM no.24:105-111 '62.
(MIRA 15:6)
(Steel--Spectra) (Gases in metals)

FEDOROV, A.A.; BUYANOV, N.V.; LINKOVA, F.V.; SUKHOVA, N.P.

Spectrochemical determination of hafnium (0.5 - 90 percent)
in zirconium-hafnium and zirconium-titanium-hafnium alloys.

Sbor. trud. TSNIICHM no.24:188-190 '62. (MIRA 15:6)
(Zirconium-hafnium alloys--Spectra) (Hafnium--Spectra)

S/048/62/026/007/016/030
B104/B138

AUTHORS: Buyanov, N. V., Komarovskiy, A. G., and Sukhenko, K. A.

TITLE: Photoelectric methods of spectrum analysis and their industrial application

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 7, 1962, 902-906

TEXT: Spectral analysis in Soviet industry is carried out with photoelectric devices produced by the American firm ARL, the Italian firm Optico-Milano, and the British firm Hilger, and also with the Soviet quantometers ДФС-10 (DFS-10), ФЭС-1 (FES-1). Series production of the 10-channel ДФС-31 (DFS-31) is planned to start in 1962. The DFS-10 is compared with the ARL quantometer, and found to be less accurate. The following must be improved in the Soviet make: the amplifying and recording system, light source, and the stand; some of the photocells must be replaced by photomultipliers. In addition, the voltage and frequency must be stabilized. There are 1 figure and 4 tables.

Card 1/1

BUYANOV, N.V., kand. tekhn. nauk

"Visual methods of emission spectral analysis " by N.S.Sventitskii.
Reviewed by N.V.Bu'yanov. Zav.lab. 28 no.10:1278 '62. (MIRA 15:10)
(Sventitskii, N.S.) (Spectrum analysis)

BUYANOV, N.V.; IVANOVA, L.A.; SUKHOVA, N.P.; TIMOSHENKO, N.N.

Spectrum analysis of open-hearth slags on a DFS-10 quantometer.

Sbor.trud. TSNIICHM no.31:19-28 '63.

(MIRA 16:7)

(Slag--Spectra)

BUYANOV, N.V.; IVANOVA, L.A.; SUKHOVA, N.P.

Spectrum analysis of heat-resistant alloys on a DFS-10 quantometer.
Sbor.trud. TSNIICHM no.31:29-33 '63. (MIRA 16:7)
(Heat-resistant alloys-Spectra)

BUYANOV, N.V.; KONDRAT'YEV, P.A.; KOROTKOV, V.F.

Spectrum analysis by means of a plain, high-voltage spark generator
of high stability. Sbor.trud. TSNIICM no.31:46-49 '63.

(MIRA 16:7)

(Spectrum analysis) (Electric spark)

BUYANOV, N.V.; ZAMARAYEV, V.P.

Investigating the effect of magnetic field on the sensitivity and
reproducibility of the results of emission spectrum analysis. Sbor.-
trud. TSNIICHM no.31:53-63 '63. (MIRA 16:7)
(Spectrum analysis) (Magnetic fields)

BUYANOV, N.V.

Spectrum analysis of chromium steel. Sbor.trud. TSNIICHM no.31:
67-78 '63. (MIRA 16:7)
(Chromium steel--Spectra)

SHUVALOV, M.; BUYANOV, N., inzh.-inspektor

With small forces. Pozh. delo 9 no.6:21 Je '63.

(MIRA 16:8)

1. Zamestitel' nachal'nika operativnogo otdela Upravleniya
pozharney okhrany RSFSR (for Shuvalov).

~~BUYANOV~~, N.V.; ZUBKOVSKIY, S.L.; KOVALENKO, T.V.; KOROTKOV, V.F.; LINDSTREM,
V.R.

Experience in working with the DFS-10 photoelectric instrument.
Zav.lab 26 no.10:1155-1158 '60. (MIRA 13:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Spectrophotometry) (Steel--Analysis)

I 14979-65 EWT(m)/EPF(n)-2/EPA(bb)-2/EWP(b) Pu-4 ASD(a)-5/FWL/.../ADC(b)/
 ASD(m)-3/AFIC(p)/RTEM(1)/ESD(gs)/ESD(t) JD/aw/JG/MLK
 ACCESSION NR: AT4048093 S/0000/64/000/000/0017/0018

AUTHOR: Fedorov, A.A., Buyanov, N.V., Linkova, F.V., Sukhova, N.P. 3

TITLE: Spectrochemical determination of hafnium in zirconium-hafnium and zirconium-
titanium-hafnium alloys 27 27

SOURCE: ²⁷Spektral'ny*ye i khimicheskiye metody* analiza materialov (Spectral and
 chemical methods of materials analysis): sbornik metodik. Moscow, Izd-vo Metallurgiya
 1964, 17-18

TOPIC TAGS: titanium alloy, spectroscopy, hafnium determination, hafnium alloy,
 zirconium alloy

ABSTRACT: The spectrochemical method used for the determination of hafnium in Zr-
 Hf and Zr-Ti-Hf alloys differs from the earlier methods, in that the alloy sample was
 dissolved in a mixture of acids, after which the hydroxides were precipitated by ammonia
 and calcined until the formation of oxides. Analysis was by a spectroscopic method. This
 method is suitable for determining 0.5 - 90% Hf; the relative error of the method for
 0.5-2, 2-10, 10-40 and 40-90 % Hf is 10, 4, 2.5 and 2%, respectively. The sensitivity
 of the method is 0.1%. The preparation of the sample is described. The spectral

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L 14979-65

ACCESSION NR: AT4048093

analysis was carried out on the ISP-22 spectrograph with a one-lens condenser and a 0.01 mm aperture width. The distance from the lens to the light source was 15 cm and to the spectrograph aperture, 75 cm. The light source was a spark generator 10-2, C=0.01 microfarad, L=0.01 microhenry, spark gap 3 mm, i=1.7 amps, the distance between the carbon electrodes = 1.5 m. For the determination of 0.5-10% Hf, the pair of lines Hf 2861.70 - Zr 2856.06 Å were used; for 10-90% Hf, the pair Hf 2861.70 - Zr 2810.914 Å were used instead. The experimental data are tabulated. Original has 1 table.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I.P. Bardina (Central Scientific Research Institute of Ferrous Metallurgy)

SUBMITTED: 12Feb64

ENCL: 00

SUB CODE: MM, IC

NO REF SOV: 001

OTHER: 000

Card 2/2

BUYANOV, O., kand. tekhn. nauk

New machinery will come to our fields. Znan. ta pratsia no.4:9
Ap '59. (MIRA 12:10)
(Agricultural machinery) (Corn (Maize))

BUYANOV, P.

Improve production and technical services to collective farms.
Vop.ekon. no.1:116-121 Ja '59. (MIRA 12:1)
(Agricultural machinery)

BUYANOV, P.

Improving the supply of equipment and machinery on collective farms.
Vop. ekon. no.8:46-53 Ag '59. (MIRA 12:11)
(Agricultural machinery)

88363

S/195/60/001/004/014/015
B017/B055

5.1190

AUTHOR: Buyanov, P. A.

TITLE: Studies on the Conversion of Ortho Hydrogen to Para Hydrogen on Solid Catalysts. III. Catalysis by Rare-earth Hydroxides

PERIODICAL: Kinetika i kataliz, 1960, Vol. 1, No. 4, pp. 617-619

TEXT: The catalytic activity of the hydroxides of praseodymium, gadolinium, terbium, and dysprosium was determined by the conversion of ortho hydrogen to para hydrogen at 78, 64, and 22°K and 3-150 atm. The catalysts were prepared by slowly precipitating the corresponding ion from nitric-acid solution by means of dilute alkali solution. The precipitates were washed with distilled water, filtered, dried at 40°C and subsequently subjected to heat treatment in air at 100°C. The rate constant of the reaction was calculated from the equation

$$k' = \frac{n_c}{V_c} \log \frac{1 - C_o/C_{eq}}{1 - C/C_{eq}}$$

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Studies on the Conversion of Ortho Hydrogen
to Para Hydrogen on Solid Catalysts. III.
Catalysis by Rare-earth Hydroxides

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where k' denotes the rate constant of the reaction in mole/cm³.sec; n_c the hydrogen consumption in mole/sec, V_c the catalyst volume in the reactor in cm³, and C_0 , C_{eq} and C the initial-, equilibrium and running concentrations, respectively, of para hydrogen in %. The values for the rate constant of the reaction are shown in Table 1. The dependence of the rate constant on temperature and effective magnetic moment was investigated. The rate constant was found to be temperature independent at pressures between 3 and 150 atm. Table 2 gives the activation energy and several other characteristics of the catalysts investigated. The catalytic activity of rare-earth hydroxydes is lower than that of hydroxydes of the iron-group elements. The authors found that the theory by Wigner (Ref. 2) on the execution of homogeneous catalytic reactions is also applicable to the heterogeneous catalysis by the hydroxides. The conversion of ortho hydrogen to para hydrogen is best catalyzed by the elements having an incomplete 3d electron shell. The authors thank G. K. Boreskov, Corresponding Member of the AS USSR, for directing the

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Studies on the Conversion of Ortho Hydrogen
to Para Hydrogen on Solid Catalysts. III.
Catalysis by Rare-earth Hydroxides

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S/195/60/001/004/014/015
B017/B055

investigation and for advice given. There are 2 tables and 4 references:
2 Soviet.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy g. Dubna
(Joint Institute of Nuclear Research Dubna)

SUBMITTED: September 1, 1960

Card 3/3

BUYANOV, P.S.; KARAVAYEV, A.A.; KULAGIN, N.A.; ASTAKHOV, V., red.;
VALOVOY, D., red.; LEPNIKOVA, Ye., red.; MOSEVINA, R.,
tekhn.red.

[New stage in the development of the collective farm system]
Novyi etap v razvitii kolkhoznogo stroia. Moskva, Izd-vo
sotsial'no-ekon.lit-ry, 1959. 347 p. (MIRA 12:11)
(Collective farms)

BUYANOV, P.S., kand.ekon.nauk, red.; LAPTEV, I.D., prof., red.; SEMIN, S.I., kand.ekon.nauk, red.. Prinimala uchastiye SUVOROVA, L.I., mladshiy nauchnyy sotrudnik. RAKITINA, Ye.D., red.; BALLOD, A.I., tekhn.red.

[Development of collective-farm economy] Razvitie obshchestvennogo khoziaistva kolkhov. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960.
294 p. (MIRA 13:7)

1. Akademiya nauk SSSR. Institut ekonomiki. 2. Institut ekonomiki AN SSSR (for Buyanov, Lapter, Semin, Suvorova).
(Collective farms--Finance)

BUYANOV, P.V., podpolkovnik med.sluzhby

Evaluation of the functional state of the cardiovascular system by
mechanocardiography in hypertension in flying personnel. Voen.-med.
zhur. no.10:38-43 0 '58. (MIRA 12:12)

(HYPERTENSION, physiol.

cardiovasc. mechanocardiography in flying personnel
(Rus))

(AVIATORS, disc.

hypertension, mechanocardiography of cardiovasc.
system (Rus))

BUYANOV, P.V., podpolkovnik meditsinskoy sluzhby

Measured physical stress as a method for evaluating the functional
state of the cardiovascular system in hypertensive disease. Voen.-
med.zhur. no.9:29-34 S '59. (MIRA 13:1)
(HYPERTENSION, pathology)
(CARDIOVASCULAR SYSTEM, pathology)
(EXERCISE)

BUYANOV, P. V.

KARPOV, Ye. A., GALKIN, A. V., SAMUKHIN, N. V., TERENT'YEV, V. G., SHEVCHENKO, A. I., are co-authors of the article, "Contraindications to Oxygen Respiration under Increased Pressure."

SO: Voyenno-Meditsinskiy Zhurnal, No.11, Nov. 1960 (Recd, Aug 1960)
JPRS: 7993, 28 March 1961, Unclassified.

88261

17.2550

S/177/60/000/003/001/002
B023/B066

AUTHOR: Buyanov, P. V., Lieutenant-Colonel of the Medical Service

TITLE: Changes of Respiration, Blood Circulation and Peripheral
Blood in Men After Prolonged Stay at High Altitudes

PERIODICAL: Voenno-meditsinskiy zhurnal, 1960, No. 3, pp. 25-29

TEXT: The authors examined 12 men in the age from 21-24 years who were subjected to 174 ascents in an altitude chamber, 55 times up to an altitude of 13,000 and 14,000 m, 50 times to 15,000 and 16,000 m altitude, 38 times to 17,000 and 18,000 m, and 31 times to 19,000 and 20,000 m. In men who were exposed to the above effects, temperature and body weight were measured, vital capacity of the lungs, percussion and auscultatory changes of heart and lungs were determined, the dynamics of the pulse and arterial pressure was examined, an orthostatic test and a test with a dosed physical strain, X-ray examination of the thorax organs and a general clinical blood analysis were carried out. The resultant data are summarized by the authors as follows: 1) prolonged oxygen breathing under

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Changes of Respiration, Blood Circulation and
Peripheral Blood in Men After Prolonged Stay
at High Altitudes

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B023/B066

excess pressure in 13,000 - 20,000 m does not cause in men constant and irreversible changes in the respiratory organs, in blood circulation or in the blood system, when using an adequate oxygen and pressurized equipment. 2) Prolonged oxygen breathing under pressure in a dilute atmosphere leads to a marked but transient adaption of nervous regulation, blood circulation and blood system. 3) The change in the circulatory system and in the blood under the excess pressure is due, according to the author's opinion, to hypertension in the system of the pulmonary artery and stagnation phenomena in the lungs, which act reflectorily upon blood circulation and blood composition. 4) The reduction of the pulmonary vital capacity is an indicator of the degree of development of the stagnation and atelectasis of the lungs. 5) The pronounced bradycardia or tachycardia, a marked phasic sinus arrhythmia, a considerable drop or increase of pulse pressure are indicators of the harmful effects of such tests. The neutropenic and lymphopenic blood reaction indicates a poor compatibility of the oxygen breathing under excess pressure. S. P. Uspenskiy (Deceased), P. N. Ivanov, A. R. Mansurov

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88261

Changes of Respiration, Blood Circulation and
Peripheral Blood in Men After Prolonged Stay
at High Altitudes

S/177/60/000/003/001/002
B023/B066

and A. I. Shevchenko took part in the examinations. Data obtained by
D. I. Ivanov, M. I. Vakar, V. B. Malkin, V. N. Chernigovskiy, A. Ya.
Yaroshevskiy are mentioned. There are 3 tables.

SUBMITTED: December 1959

X

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BUYANOV, P.V., podpolkovnik meditsinskoy sluzhby

Significance of emotional influences on blood circulation in hypertension. Voen.-med. zhur. no.5:81-83 My '60. (MIRA 13:7)
(HYPERTENSION) (EMOTIONS)
(BLOOD--CIRCULATION) (BLOOD--AVIATION MEDICINE)

26467

21.2100

S/17/60/000/011/001/003

D219/D302

AUTHORS: Buyanov, P. V., Galkin, A. V., Karpov, Ye. A.,
Samukhin, N.V., Terent'yev, V. G., Shevchenko,
A. I.

TITLE: Contra-indications to the breathing of oxygen at
increased pressure

PERIODICAL: Voenno-meditsinskiy zhurnal, no. 11, 1960, 64 - 68

TEXT: The authors wished to study the effect of systematic
breathing of oxygen under pressure and discover medical contra-
indications to its use, especially with regard to personnel suf-
fering from physical defects which do not render them unfit for
flying duty. 125 persons, 20 - 40 years old, underwent pressure
chamber tests and prolonged clinical observation. All were well
and fit for flying duty. 43 had various defects such as pleural
synechia and adhesions, hypertensive neurocirculatory dystonia
(5), 1st degree thyroid enlargement without malfunction (4) and
so on. Normal clinical records were taken and analyses done

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Contra-indication to the breathing... D219/D302

plus X-Ray, neurological, electrophysiological and ENT examination. Subjects took part in 1 - 97 experiments at 7 - 14 day intervals. Physiological effects were noted immediately; rise in heat and respiration rate, arterial pressure, bioelectric respiratory muscle activity; ECG variation; fall of oxyhemoglobin level to 60 - 80% (slowing of circulatory rate; changes in latent period of conditioned motor reflexes; occasional subcutaneous emphysema. Subjects usually felt well after tests complaining rarely of fatigue or headache. Clinical examination generally revealed slowing of pulse (by 6 - 18 beats), increase in venous pressure, moderate increase in arterial pressure, slight fall in pulse pressure and increase in heart size. In over 30% of cases heart murmurs - usually pulmonary and aortic - appeared; No pathological ECG changes save extrasystoles in 4 cases. Changes were often recorded in capillary formation, phethysmograph curves and in vasomotor reflexes. Aftereffects: Lung vital capacity decreased by 200 - 400 ml. A third of the subjects had scattered dry rales. Lung X-Ray showed occasional

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Contra-indications to the breathing...D219/D302

shadowing and local disciform atelacteses. There was an increase in neutrophil leucocytes in the peripheral blood and a relative lymphocyte fall. Tendon reflexes became more and more sensitive, finger tremor increased, touch discrimination and co-ordination deteriorated and signs of general fatigue appeared. All changes were reversible, usually in a few hours. As regards personnel suffering from minor defects, the effect of these deficiencies was varies. In some cases e.g., chronic gastritis, they suffered no adverse effect either initially or after prolonged experimentation, but it was clear that systematic participation in such high altitude tests was contra-indicated in all cases of pulmonary tuberculosis, neurocirculatory dystonia, leucopenia, pronounced emotional instability, endocrine deficiency, chronic ENT conditions, or for persons, who became rapidly anoxic, had undergone brain trauma or who were suffering from upper respiratory tract infections or exarcebations of chronic upper respiratory tract disease.

SUBMITTED: August 1960

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ACCESSION NR: AT4042660

S/0000/63/000/000/0089/0092

AUTHOR: Buyanov, P. V.

TITLE: Functional evaluation of the circulation on the basis of changes in circulatory efficiency. Significance of the method in the selection and training of flight crews

SOURCE: Konferentsiya po aviatsonnoy i kosmicheskoy meditsine, 1963. Aviatsonnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy konferentsii. Moscow, 1963, 89-92

TOPIC TAGS: cardiovascular system, circulation, circulatory efficiency, oxygen consumption, flight crew selection, physical stress, minute volume, obligatory minute volume

ABSTRACT: The use of the concept of the obligatory minute volume in the evaluation of cardiovascular function and the response of the body to stress has certain drawbacks. The author has therefore developed the concept of circulatory efficiency which represents the reciprocal of the blood volume required to transport 100 cc of oxygen consumed by the body, thus taking into consideration the effectiveness of gas exchange. In the present paper, he describes experiments carried out in 1958-63 in which the oxygen consumption and minute volume were determined simultaneously.

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taneously under conditions of either complete rest, graded physical stress (exercise), respiration under positive pressure (300 mm water), oxygen deprivation (8.0-8.5% O₂ for 10-15 minutes or 9.3-10.5% O₂ for 30-60 minutes), or the effect of hypodynamia. In resting subjects, the average index of circulatory efficiency was 2.05 liters (1.60-2.48), and was found to be quite constant for a particular individual. Graded physical stress decreased this index to an average of 1.00 (0.78-1.22) in healthy subjects, returning to normal about 5 minutes after the stress was discontinued. In subjects with poor adaptability to the environment, hypertensive disease or neurocirculatory dystonia, the increase in circulatory efficiency was much less marked. The average increase in minute volume following physical stress was 65%, while the O₂ consumption increased 323%. Prolonged exposure to various factors encountered during flight produced either no change or slight increases in efficiency, indicating a high degree of training and adaptability in these subjects, while those subjects in which the efficiency decreased later developed disturbances in heart rate and hypertension. This test is therefore valuable for evaluating the functional adaptability of the cardiovascular system to stress.

ASSOCIATION: none

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: PH

Cord 2/2 NO REF SOV: 000

OTHER: 000

ACCESSION NR: AT4042657

S/0000/63/000/000/0072/0075

AUTHOR: Beregovkin, A. V.; Buyanov, P. V.; Malkin, V. B.

TITLE: Respiration and gas exchange during acute hypoxia

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963.
Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine);
materialy* konferentsii. Moscow, 1963, 72-75

TOPIC TAGS: hypoxia, respiration, gas exchange, diagnostic tool, low oxygen mixture, respiratory volume, oxygen consumption

ABSTRACT: Hypoxia is a recognized diagnostic tool for determining the reserve potential of the nervous system, respiration, and circulation in healthy individuals. It is also a useful mechanism for detecting the initial stages of some diseases. The purpose of this study was to determine some general mechanisms of breathing through individual response to acute hypoxia in 54 healthy male subjects aged 20--23 years. The medium for producing

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acute hypoxia consisted of an oxygen-nitrogen mixture (9.3--10.9% oxygen in the first series and 8.0--8.5% oxygen in the second). Investigations were conducted following prolonged sleep, on an empty stomach, and when subjects were in a supine position. Frequency, depth and rhythm of respiratory movement, and the maximum capacity of the lungs were measured spirographically. Lung ventilation was measured using a gasometer, and gas exchange was determined by the Douglas-Holden method. In the first series, (9.3--10.9% oxygen), the mean increase in lung ventilation was 24% whereas in the second series the increase was 47%. Respiratory volume increased by 28% in the first series and 51% in the second. Oxygen consumption in the first series fell 11% in the first 15 min but reached 98% of the normal value after 50 min. In the second series, oxygen consumption fell 71% and reached only 79% of the normal value by the end of the test. Respiration rate did not vary appreciably in either series. The authors conclude that low resistance to hypoxia is indicated by a lack of noticeable change in the volume of lung ventilation or a sharp rise thereof (greater than 100%), decreased depth of breathing, decreased vital capacity of the lungs (40% and more), and a sharp

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drop in gas exchange during the initial stages of a hypoxia probe followed by delayed normalization.

ASSOCIATION: none

SUBMITTED: 27Sep63

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 000

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VOLYNKIN, Yu.M.; ARUTYUNOV, G.A.; ANTIPOV, V.V.; ALTUKHOV, G.V.;
 BAYEVSKIY, R.M.; BELAY, V.Ye.; BUYANOV, P.V.; BRYANOV, I.I.;
 VASIL'YEV, P.V.; VOLOVICH, V.G.; GAGARIN, Yu.A.; GENIN, A.M.;
 GORBOV, F.D.; GORSHKOV, A.I.; GUROVSKIY, N.N.; YESHANOV, N.Kh.;
 YEGOROV, A.D.; KARPOV, Ye.A.; KOVALEV, V.V.; KOLOSOV, I.A.;
 KORESHKOV, A.A.; KAS'YAN, I.I.; KOTOVSKAYA, A.R.; FALIBERDIN,
 G.V.; KOPANEV, V.I.; KUZ'MINOV, A.P.; KAKURIN, L.I.; KUDRVA,
 R.V.; LEBEDEV, V.I.; LEBEDEV, A.A.; LOBZIN, P.P.; MAKSIMOV,
 D.G.; MYASNIKOV, V.I.; MALYSHKIN, Ye.G.; NEUMYVAKIN, I.P.;
 ONISHCHENKO, V.F.; POPOV, I.G.; PORUCHIKOV, Ye.P.; SIL'VESTROV,
 M.M.; SERYAPIN, A.D.; SAKSONOV, P.P.; TEREENT'YEV, V.G.; USHAKOV,
 A.S.; UDALOV, Yu.F.; FOMIN, V.S.; FOMIN, A.G.; KHLEBNIKOV, G.F.;
 YUGANOV, Ye.M.; YAZDOVSKIY, V.I.; KRICHAGIN, V.I.; AKULINICHEV,
 I.T.; SAVINICH, F.K.; STMPURA, S.F.; VOSKRESENSKIY, O.G.;
 GAZENKO, O.G., SISAKYAN, N.M., akademik, red.

[Second group space flight and some results of the Soviet
 astronauts' flights on "Vostok" ships; scientific results of
 medical and biological research conducted during the second
 group space flight] Vtoroi gruppovoi kosmicheskii polet i neko-
 torye itogi poletov sovetskikh kosmonavtov na korabliakh
 "Vostok"; nauchnye rezul'taty medikobiologicheskikh issledovaniy,
 provedennykh vo vremia vtorogo gruppovogo kosmicheskogo poleta.
 Moskva, Nauka, 1965. 277 p. (MIRA 18:6)

ACC NR: AP6007746

SOURCE CODE: UR/0293/66/004/001/0151/0155

AUTHOR: Buyanov, P. V.; Kovalev, V. V.; Terent'yev, V. G. Fedorov, Ye. A.
Khlebnikov, G. F. 36
B

ORG: none

TITLE: Results of preflight and postflight medical examinations of Voskhod-1 crew members 13
2

SOURCE: Kosmicheskiye issledovaniya, n. 4, no. 1, 1966, 151-155

TOPIC TAGS: cosmonaut, physiological change, cardiovascular system, enzyme, encephalogram, muscular tonus, leukocyte/~~Voskhod-1~~

ABSTRACT: Results of preflight and postflight examinations of the Voskhod-1 cosmonauts were compared and physiological shifts were noted. The physiological profile of each cosmonaut was determined from background data compiled for two weeks before the flight. Examination of the cosmonauts after preflight training showed increased resistance to flight factors in all of them, especially Komarov. By comparison, Feoktistov and Yegorov showed less adaptability, especially in the cardiovascular system. In the week preceding the flight, Komarov and Feoktistov were somewhat reserved in behavior. Prelaunch tests conducted at the cosmodrome emphasized the nervous and emotional state of the cosmonauts. The four-day postflight medical examination began 15 minutes after landing. To ensure uniformity, all postflight tests

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ACC NR: AP6007746

(including laboratory tests) were conducted by the same people who had performed the preflight checks. Clinical investigation begun six hours after landing showed a moderate decrease in working capacity, revealed in an increase in the number of errors and a lengthening of latent periods during performance of psychological tests. Encephalograms showed intensification of retardation processes in the cerebral cortex. Slight variations in digestive enzyme activity were also observed in the cosmonauts after the flight: the activity of amylase, enterokinase, alkaline phosphatase, and trypsin increased. The following shifts were noted in cosmonauts immediately after the flight: slight instability in the Romberg position, tremor of fingers, increased tendency to perspire, moderate decrease in muscle tone, quickening of the pulse, and decrease in blood pressure due to increased diastolic pressure. Body weight decreased 2.6% for Koamrov, 4% for Feoktistov, and 3.9% for Yegorov. In addition, moderate shifts in metabolic processes were noted: increased energy consumption while resting, increase in blood urea and cholesterol, and increased elimination of nitrogenous components from urine. Some decrease in the phagocytic activity of leukocytes was also observed. The changes noted were attributed to fatigue and stress. They were of a strictly functional nature and usually disappeared within several days after the flight. Individual characteristics and differences in pre-flight preparation were reflected in the varying character of these physiological shifts. [JS]

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Card 2/2 BLG

L. 01/09-67 FSS-2/INT(1)/SEC(1)-2 SCPI T2/01/01/01

ACC NR: AT6036480

SOURCE CODE: UR/0000/66/000/000/0034/0036

AUTHOR: Arzhanov, I. M.; Beregovkin, A. V.; Bryanov, I. I.; Buyanov, P. V.; Zaloguyev, S. N.; Kamen'shchikov, Yu. V.; Kovalov, V. V.; Krasovskiy, A. S.; Kuznetsov, S. V.; Litsov, A. N.; Nikitin, A. V.; Nistratov, V. V.; Poruchikov, Ye. A.; Potkin, V. Ye.; Teret'yev, V. G.; Fedorov, Ye. A.; Khlebnikov, G. F.; Yaroshenko, G. L.

ORG: none

TITLE: Results of clinical and physiological investigations of the crew of the first multiman Voskhod spacecraft [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 34-36

TOPIC TAGS: space medicine, space physiology, weightlessness, bodily fatigue, stress reaction, combined stress, cardiovascular system, central nervous system, manned spaceflight/Voskhod-1

ABSTRACT: The inclusion of a physician in the crew of the Voskhod-1 made it possible to increase medical investigations of the crew members during flight and to compare them with results of preflight and postflight examinations. The scope of the physiological examinations was selected in order to obtain a more complete evaluation of the functional condition of the cardiovascular and central nervous systems, and the function of

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ACC NR: AT6036480

external respiration of the cosmonauts. Physical exercises and ortho-static tests were included to detect earlier signs of physiological shifts.

Examinations were carried out before and after training in the ship, where certain conditions of flight were simulated, and also two weeks before flight. Postflight examination was begun fifteen minutes after landing and was continued for the first four days after the flight and also two weeks later.

After landing, the cosmonauts were active, looked somewhat excited, and complained of general fatigue. They were found to have hyperemia of the mucosa of the upper respiratory tract and conjunctivitis.

Komarov's weight dropped by 2.6%, Feoktistov's weight dropped by 4%, and Yegorov's by 3.9%. Weight loss was determined by Zhdanov to be due to water and fat loss. Neurological examination revealed a light swaying in the Romberg position, a tremor of the fingers, and increased perspiration. In addition, Yegorov showed a contraction of the retinal arteries. Disruption of vision and vestibular difficulties were not noted. Changes in EEG indicated an increase in inhibitory processes in the cortex of the brain. A diminution in work capacity was established by

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psychological experiments (increase in the number of mistakes, increase in latent periods). 0

Indices of cardiovascular activity during rest did not exceed wide norms. However, an increase in pulse frequency was noted (Komarov up to 96, Feoktistov up to 100, and Yegorov up to 94 beats/min), as well as moderate drop in arterial pulse pressure at the expense of an increase in diastolic pressure. All three cosmonauts, when subjected to exercise, showed a significant increase in the pulse rate and inertia in the stroke volume. Feoktistov and Yegorov showed a significant diminution in the heart stroke volume and minute circulation of the blood during the passive orthostatic test. This could indicate a disruption of the venous inflow to the heart.

Postflight blood examinations indicated neutrophilic leukocytosis and eosinopenia. Urine was found to contain significant quantities of salts, chiefly urates, single erythrocytes (in the field of vision), and an increase in the excretion of 17-oxycorticosteroids. Eosinopenia, an increase in excretion of products of hormone decomposition, indicated the development of a stress reaction in cosmonauts. Since some of the indications found on the flight were also found after training in the train-

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ACC NR: AT6036480

ing ship, there is reason to attribute them to limitation of motor activity under conditions of weightlessness. The functional shifts found after flight are indications of a general fatigue, a moderate stress reaction, and a certain amount of detraining. In general, the changes observed in the cosmonauts were of one type. The differences found between the cosmonauts can be attributed to individual differences. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06, 22 / SUBM DATE: 00May66

Card 4/4 *e/k*

L 11384-67 EWT(1) SCTB DD/GD

ACC NR: AT6036508

SOURCE CODE: UR/0000/66/000/000/0080/0081

AUTHOR: Buyanov, P. V.; Beregovkin, A. V.; Pisarenko, N. V.; Slesarev, V. I. 27

ORG: none

TITLE: Prolonged hypokinesia as a factor altering the functional state of the cardiovascular system in healthy humans [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 80-81

TOPIC TAGS: hypodynamia, isolation test, cardiovascular system, human physiology, space physiology

ABSTRACT: The effects of prolonged bed-rest (11-men) and water immersion (2 men) were investigated. In all, 13 experiments were conducted on 11 healthy males aged 22-26. The duration of hypokinesia was 10-15 days. Tests were conducted to evaluate the usefulness of physical exercise (4 tests) and periodic compression of the lower extremities (2 tests) to diminish the deleterious effects of hypodynamia. Examinations of peripheral hemodynamics, intracardiac dynamics, cardiac bioelectricity, contraction capacity of the myocardium of the left ventricle, and vascular tonus were conducted. This involved the use of tachooscillograms, arterial oscillo-

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